

Attorney Docket No. 130924.61101

Serial No. 09/827,256

Inventor: Empedocles

Paper dated January 3, 2006

AMENDMENTS TO CLAIMS

This listing of claims will replace all previous versions, or listings, of claims in this application.

1. – 4. (Cancelled)

5. (Previously Presented) A spectral label identification method comprising:
spatially restraining a first spectrally labeled body at a site in an array of sites;
generating a first spectrum from the first body while the first body is spatially restrained, the first spectrum having a plurality of signals at different wave lengths;
dispersing the first spectrum from the first body across a sensor surface;
identifying the first body from the dispersed first spectrum;
spatially restraining a second spectrally labeled body at a site;
generating a second spectrum from the second body while positioning the second body, the first spectrum being different than the second spectrum, the second spectrum having a plurality of signals at differing wavelengths; and
identifying the second body from the second spectrum, wherein a first plurality of spectrally labeled bodies are simultaneously spatially restrained at the array of sites when the first body is restrained, and wherein a second array of spectrally labeled bodies are simultaneously spatially restrained at the array of sites when the second body is restrained.

6. – 10. (Cancelled)

11. (Currently Amended) A spectral label identification method comprising:
sequentially spatially restraining a first spectrally labeled body;
generating a first spectrum from the first body while the first body is sequentially spatially restrained;

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dispersing the first spectrum from the first body across a sensor surface;
identifying the first body from the dispersed first spectrum;
sequentially spatially restraining a second spectrally labeled body;
generating a second spectrum from the second body while positioning the second body, the first spectrum being different than the second spectrum;
identifying the second body from the second spectrum, wherein a first plurality of spectrally labeled bodies are simultaneously spatially restrained at the array of sites;
drawing the first body into an opening by drawing fluid into the opening, expelling the first body from the first opening, and drawing the second body into the opening by drawing fluid into the opening, the signal generating steps being performed while the first and second bodies are sequentially disposed within the opening; and
drawing fluid into an array of openings and expelling fluid from the array of opening openings so as to sequentially restrain a plurality of arrays of bodies.

12. – 23. (Cancelled)

24. (Previously Presented) The method of claim 27, wherein the focused laser beam is configured to restrain a plurality of the bodies simultaneously.

25. (Currently Amended) The method of claim 24, wherein the ~~trap is elongated so that the restrained bodies are arranged along a line.~~

26. (Cancelled)

27. (Currently Amended) A method comprising:
releasing a plurality of bodies in fluid;

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spatially restraining a first body within the fluid by transmitting a focused laser beam through the fluid toward the first body so that the laser beam acts as an optical tweezers; generating the first spectrum from the spatially restrained first body, the first spectrum having a plurality of signals at differing wavelengths, wherein the restrained body generates the spectrum in response to the restraining energy; and identifying the first body from the first spectrum.

28. – 31. (Cancelled)

32. (Currently Amended) A method comprising:
releasing a plurality of bodies in fluid;
spatially restraining a first body within the fluid by transmitting restraining energy through the fluid toward the first body;
generating a first spectrum from the spatially restrained first body;
identifying the first body from the first spectrum,
wherein the spatially restraining step is performed with a focused laser beam, the laser beam acting as an optical tweezers, and
wherein the focused laser beam is configured to restrain a plurality of the bodies simultaneously;
moving the a restrained body within the fluid by moving the restraining energy or the fluid;
sweeping the restraining energy through the fluid to move the first body toward a first site;

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sweeping the restraining energy through the fluid to move a second body toward a second site; and

inhibiting transmission of the restraining energy between the first and second sites.

33. (Cancelled)

34. (Previously Presented) A multiplexed assay system comprising:
a support structure having an array of sites;
a plurality of bodies, each body having a label for generating an identifiable spectrum in response to excitation energy, the spectrum having a plurality of signals at differing wavelengths, the bodies being restrainingly receivable at the sites, and releasable from the sites as to allow another plurality of bodies to be received at the sites; and

an optical train imaging at least one site on a sensor surface, the optical train including a wavelength dispersive element.

35. (Previously Presented) A multiplexed assay system comprising:
a support structure having an array of sites wherein the sites comprise openings in the support structure;

a plurality of bodies, each body having a label for generating an identifiable spectrum in response to excitation energy, the bodies being restrainingly receivable at the sites, the openings sized to receive a single body therein so as to separate the individual bodies for discrete imagining; and

an optical train imaging at least one site on a sensor surface, the optical train including a wavelength dispersive element.

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36. (Cancelled)

37. (Previously Presented) The assay system of claim 35, wherein the bodies and support structure are exposed to a fluid, and further comprising means for restraining the bodies within the openings.

38. (Original) The assay system of claim 37, wherein the restraining means releasably restrains the bodies within the openings, releasing of the bodies allowing the bodies to move with the fluid and out of the openings.

39. (Original) The assay system of claim 35, further comprising a pump coupled to the openings for at least one of:

drawing fluid and the bodies into the openings, and
expelling fluid and the bodies out of the openings.

40. (Original) The assay system of claim 34, wherein the sites comprise a discrete array of a material capable of bonding to the bodies.

41. (Original) The assay system of claim 34, wherein the optical train comprises a scanner for moving a sensing field among the sites.

42. (Original) The assay system of claim 34, wherein the sites are separated sufficiently along a dispersive axis of the dispersive element to avoid excessive overlap of dispersed spectra generated simultaneously by the bodies at the sites.

43. - 44. (Cancelled)

45. (Previously Presented) A multiplexed assay system comprising:
a plurality of bodies released in a fluid, the bodies having labels for generating identifiable spectra, the spectra having a plurality of signals at differing wavelengths;

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an energy transmitter coupled to the fluid so as to spatially restrain at least one body with a restraining energy beam; and

a sensor oriented to receive the spectrum from at least one body wherein the at least one body generates the spectrum in response to the restraining energy beam.

46. (Cancelled)

47. (Previously Presented) The multiplexed assay system of claim 45, further comprising a scanner coupled to the restraining energy beam so as to move the restraining energy beam within the fluid.

48. (Currently Amended) The multiplexed assay system of claim 47, wherein an optical train images the a site toward the sensor, the energy transmitter configured to move the at least one body toward the site.

49. – 52. (Cancelled)

53. (Previously Presented) The multiplexed assay system of claim 45, wherein the restraining energy beam is configured to restrain a plurality of the bodies along a line.

54. (Currently Amended) A multiplexed assay system comprising:
a plurality of bodies released in a fluid, the bodies having labels for generating identifiable spectra;

an energy transmitter coupled to the fluid so as to spatially restrain at least one body with a restraining energy beam, the restraining energy beam configured to restrain at least one body along a line, and an optical train directs a dispersed image of the bodies from along the line onto the a sensor surface, the dispersed image having a dispersion axis at angle to the line;
and

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a sensor oriented to receive the spectrum identifiable spectra from the at least one body wherein the at least one body generates the identifiable spectra in response to the restraining energy beam.